Alinta Energy (Chichester) Pty Ltd

Electricity Integrated Regional Licence (EIRL11) 2022 Asset Management System Review

Final report

April 2023

ASSURANCE ADVISORY GROUP

Level 11, 251 Adelaide Terrace
PERTH WA 6000

17 April 2023

Catherine Rousch
Manager WA Retail Regulation
Alinta Energy
Level 18 Raine Square, 300 Murray Street
Perth WA 6000

Dear Catherine

Electricity Integrated Regional Licence (EIRL11) – 2022 Asset Management System Review Report

We have completed the Electricity Integrated Regional Licence Asset Management System Review for Alinta Energy (Chichester) Pty Ltd for the period 30 August 2019 to 20 September 2022 and are pleased to submit our report to you.

I confirm that this report is an accurate presentation of the findings and conclusions from our review procedures.

If you have any questions or wish to discuss anything raised in the report, please contact Andrew Baldwin at abaldwin@assuranceadvisory.com.au or myself at slinden@assuranceadvisory.com.au.

Yours sincerely
Assurance Advisory Group

Stephen Linden
Director
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Table of Contents

1. Independent assurance practitioner's report

Modified opinion

We have undertaken a reasonable assurance engagement on the effectiveness of Alinta Energy (Chichester) Pty Ltd's (**AEC**) Asset Management System (**AMS**), relating to its Electricity Integrated Regional Licence (EIRL11) (the **Licence**) for the period 30 August 2019 to 20 September 2022 (**review period**).

In our opinion, based on the procedures we have performed and the evidence we have obtained, except for the effect of the matters described in the 'Basis for qualified opinion' paragraph below, AEC has established and maintained, in all material respects, an effective AMS for assets subject to the Licence, as measured by the effectiveness criteria in the March 2019 issue of the *Audit and Review Guidelines: Electricity and Gas Licences* (**the Guidelines**) issued by the Economic Regulation Authority (the **ERA**).

Basis for modified opinion

During the period from 30 August 2019 to 30 September 2022, AEC's asset management system had the following deficiencies that require correction or improvement in order to address the effectiveness criteria nominated in the Guidelines:

Key process & effectiveness criteria	Description
4. Environmental analysis 4.2 Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved	Throughout the review period, AEC staff had not undertaken key emergency response training and drills.
5. Asset operations 5.6 Staff resources are adequate and staff receive training commensurate with their responsibilities	

We conducted our engagement in accordance with Standard on Assurance Engagements ASAE 3500 *Performance Engagements* (**ASAE 3500**) issued by the Auditing and Assurance Standards Board.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

AEC's responsibility for the AMS

AEC is responsible for ensuring that it has:

- Complied in all material respects with the requirements of the Licence as specified by the Review Guidelines
- Established and maintained an effective AMS for assets subject to the Licence, as measured by the effectiveness criteria detailed in the Guidelines.

Our independence and quality control

We have complied with the independence and other relevant ethical requirements relating to assurance engagements, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour. We applied Auditing Standard ASQC 1 *Quality Control for Firms that Perform Audits and Reviews of Financial Reports and Other Financial Information, and Other Assurance Engagements* in undertaking this assurance engagement.

Our responsibilities

Our responsibility is to express an opinion on the effectiveness of AEC's AMS for assets subject to the Licence for the period to 30 September 2022. ASAE 3500 requires that we plan and perform our procedures to obtain reasonable assurance about whether AEC has established and maintained, in all material respects, an effective AMS for assets subject to the Licence, as measured by the effectiveness criteria in the Guidelines.

A reasonable assurance engagement in accordance with ASAE 3500, to report on the effectiveness of AEC's AMS for assets subject to the Licence involves performing procedures to obtain evidence about processes and controls designed and implemented within AEC's AMS for assets subject to the Licence. The procedures selected depend on our judgement, including the identification and assessment of risks of AEC's AMS for assets subject to a Licence being materially ineffective.

Our procedures included:

- Utilising the Review Guidelines as a guide for development of a risk assessment, which involved discussions with key staff and review of documents to perform a preliminary controls assessment
- Development of a Review Plan for approval by the ERA, and an associated work program
- Interviews with and representations from AEC representatives and key operational and administrative staff to gain an understanding of the development and maintenance of policies and procedural type documentation. A full list of staff engaged has been provided at Appendix B
- Examination of documented policies and procedures for key functional requirements and consideration of their relevance to AEC's AMS requirements and standards
- Physical visit to operations located in the Pilbara region
- Consideration of reports and references evidencing activity
- Consideration of activities performed by AEC that relate to operation of the assets.

Inherent Limitations

Because of the inherent limitations of an assurance engagement, together with the inherent limitation of any system of controls it is possible that fraud, error or non-compliance with the requirements of the Guidelines may occur and not be detected.

A reasonable assurance engagement relating to the period from 30 August 2019 to 20 September 2022 does not provide assurance on whether the effectiveness of AEC's AMS for assets subject to the Licence will continue in the future.

Restricted use

This report has been prepared for use by AEC for the purpose of satisfying its obligation under Section 14 of the Electricity Industry Act 2004. We disclaim any assumption of responsibility for any reliance on this report to any person other than AEC, or for any other purpose other than that for which it was prepared. We understand that a copy of the report will be provided to the ERA for the purpose of reporting on the effectiveness of AEC's AMS. We agree that a copy of this report will be given to the ERA in connection with this purpose, however we accept no responsibility to the ERA or to anyone who is provided with or obtains a copy of our report.

[redacted] **ry Group**

Stephen Linden
Director

17 April 2023

2. Executive Summary

2.1 Introduction and Background

The Economic Regulation Authority (the **ERA**) has under the provisions of the Electricity Industry Act 2004 (the **Act**), issued to Alinta Energy (Chichester) Pty Ltd (**AEC**) an Electricity Integrated Regional Licence (EIRL 11) (the **Licence**).

Section 14 of the Act requires AEC to provide to the ERA an asset management system review (the **review**) report conducted by an independent expert acceptable to the ERA not less than once in every 24-month period unless otherwise approved by the ERA. With the ERA's approval, Assurance Advisory Group (**AAG**) has been appointed to conduct the review for the period 30 August 2019 to 20 September 2022 (**review period**).

The Licence relates to AEC's generation and retail activities in relation to its Chichester 60MW solar PV facility, and associated infrastructure for the supply of electricity to Fortescue Metals Group Ltd's Chichester hub mining operations and the Roy Hill mine site, all located in the East Pilbara region of Western Australia. The solar facility commenced operations in November 2021. EAC operates as a subsidiary within the Alinta Group and is supported by the resource and system capabilities of Alinta Energy.

The review has been conducted in accordance with the ERA's March 2019 issue of the *Audit and Review Guidelines: Electricity and Gas Licences* (**Review Guidelines**), which set out 12 key processes in the asset management life-cycle.

2.2 Findings

In considering AEC's internal control procedures, structure and environment, compliance arrangements and information systems specifically relevant to those effectiveness criteria subject to review, we observed that:

- Since commencement of operations in November 2021, AEC has maintained a largely appropriate suite of procedures and controls for the effective operation of the facility's assets. AEC is well supported by Alinta Energy's established asset management framework and supporting procedures and practices
- AEC staff appeared to have a good understanding of their roles, particularly displaying an understanding of the asset management processes within their area of responsibility
- Two elements of AEC's asset management practices require improvement (where the criteria's performance rating is "3"). Both elements relate to staff training and awareness of core emergency response requirements. This review makes one recommendation for AEC to determine and implement the necessary corrective action (refer to Recommendation 1/2022)
- AEC also has several opportunities to strengthen elements of its asset management practices. For criteria rated by this review as "B" or "2", there is an associated improvement opportunity, which has been raised with AEC staff for consideration. For the purpose of this review, these matters do not require formal corrective action.

This review assessed that, of the 58 elements of AEC's AMS:

- For the asset management process and policy definition ratings:
  - 40 are rated as "Adequately defined"
  - 7 are rated as "Requires some improvement"
  - 11 are not rated.

- For the asset management performance ratings:
  - 34 are rated as "Performing effectively"
  - 11 are rated as "Improvement required"
  - 2 are rated as "Corrective action required"
  - 11 are not rated.

2.3 AEC's response to previous review recommendations

As this is AEC's first asset management system review, there are no previous review recommendations.

2.4 Recommendations to address current asset system deficiencies

A. Resolved during current review period

Not applicable.

B. Unresolved at end of current review period

Reference (no./year)	**Process and policy deficiency / Performance deficiency** (Rating / Reference number, Asset management process & effectiveness criterion / Details of deficiency)	**Auditor's recommendation**	**Action taken**
1/2022	**B3** 4. Environmental Analysis *4.2 Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved* **B3** 5. Asset Operations *5.6 Staff resources are adequate and staff receive training commensurate with their responsibilities* At the time of our site visit, AEC's training matrix showed some overdue training. Of particular note, a significant risk to AEC's operations relates to the training requirements for site emergency response, which was recorded as overdue for all staff assigned to operations managed from the Newman Power Station (which includes the Chichester Solar Facility). We consider this issue reflects a lack of dedicated effort to ensure training requirements are maintained. Corrective action is required to improve AEC's performance against the requirements of its emergency response procedures.	AEC: (a) Schedule staff training to clear all overdue requirements with special emphasis given to site-specific emergency response drills (b) Ensure sufficient resources are allocated to maintaining key training requirements and emergency response drills.	n/a

2.5 Scope and objectives

We have conducted a reasonable assurance engagement in order to state whether, in our opinion, based on our procedures, AEC has established and maintained, in all material respects, an effective AMS for assets subject to the Licence during the period 30 August 2019 to 20 September 2022, as measured by the effectiveness criteria in the Guidelines.

Our engagement was conducted in accordance with Australian Standard on Assurance Engagements ASAE 3500 Performance Engagements, issued by the Australian Auditing and Assurance Standards Board and provides reasonable assurance as defined in ASAE 3500. The procedures we performed are described in more detail in section 2.7 below.

A reasonable assurance engagement in accordance with ASAE 3500, to report on the effectiveness of AEC's AMS for assets subject to the Licence involves performing procedures to obtain evidence about processes and controls designed and implemented within AEC's AMS for assets subject to the

Licence. The procedures selected depend on our judgement, including the identification and assessment of risks of AEC's AMS for assets subject to a Licence being materially ineffective.

ASAE 3500 also requires us to comply with the relevant ethical requirements of the Australian professional accounting bodies.

In accordance with the Review Guidelines, the review considered the effectiveness of AEC's existing control procedures within the following 12 key processes in the asset management life cycle:

Key processes	Effectiveness criteria
1. Asset Planning	1.1 Asset management plan covers the processes in this table 1.2 Planning processes and objectives reflect the needs of all stakeholders and are integrated with business planning 1.3 Service levels are defined in the asset management plan 1.4 Non-asset operations (e.g. demand management) are considered 1.5 Lifecycle costs of owning and operating assets are assessed 1.6 Funding options are evaluated 1.7 Costs are justified and cost drivers identified 1.8 Likelihood and consequences of asset failure are predicted 1.9 Asset management plan is regularly reviewed and updated.
2. Asset creation and acquisition	2.1 Full project evaluations are undertaken for new assets, including comparative assessment of non-asset options 2.2 Evaluations include all life-cycle costs 2.3 Projects reflect sound engineering and business decisions 2.4 Commissioning tests are documented and completed 2.5 Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood
3. Asset disposal	3.1 Under-utilised and under-performing assets are identified as part of a regular systematic review process 3.2 The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken 3.3 Disposal alternatives are evaluated 3.4 There is a replacement strategy for assets
4. Environmental analysis	4.1 Opportunities and threats in the asset management system environment are assessed 4.2 Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved 4.3 Compliance with statutory and regulatory requirements 4.4 Service standard (customer service levels etc) are measured and achieved.
5. Asset operations	5.1 Operational policies and procedures are documented and linked to service levels required 5.2 Risk management is applied to prioritise operations tasks 5.3 Assets are documented in an asset register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition 5.4 Accounting data is documented for assets 5.5 Operational costs are measured and monitored 5.6 Staff resources are adequate and staff receive training commensurate with their responsibilities

Key processes	Effectiveness criteria
6. Asset maintenance	6.1 Maintenance policies and procedures are documented and linked to service levels required 6.2 Regular inspections are undertaken of asset performance and condition 6.3 Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule 6.4 Failures are analysed and operational/maintenance plans adjusted where necessary 6.5 Risk management is applied to prioritise maintenance tasks 6.6 Maintenance costs are measured and monitored
7. Asset management information systems	7.1 Adequate system documentation for users and IT operators 7.2 Input controls include suitable verification and validation of data entered into the system 7.3 Security access controls appear adequate, such as passwords 7.4 Physical security access controls appear adequate 7.5 Data backup procedures appear adequate and backups are tested 7.6 Computations for licensee performance reporting are accurate 7.7 Management reports appear adequate for the licensee to monitor licence obligations 7.8 Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation
8. Risk management	8.1 Risk management policies and procedures exist and are applied to minimise internal and external risks 8.2 Risks are documented in a risk register and treatment plans are implemented and monitored 8.3 Probability and consequences of asset failure are regularly assessed
9. Contingency planning	9.1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks
10. Financial planning	10.1 The financial plan states the financial objectives and identifies strategies and actions to achieve those 10.2 The financial plan identifies the source of funds for capital expenditure and recurrent costs 10.3 The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets) 10.4 The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period 10.5 The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services 10.6 Large variances in actual/budget income and expenses are identified and corrective action taken where necessary
11. Capital expenditure planning	11.1 There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates 11.2 The capital expenditure plan provides reasons for capital expenditure and timing of expenditure 11.3 The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan 11.4 There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented

Key processes	Effectiveness criteria
12. Review of asset management system	12.1 A review process is in place to ensure the asset management plan and the asset management system described in it remain current 12.2 Independent reviews (e.g. internal audit) are performed of the asset management system

Each key process and effectiveness criterion that is applicable to AEC's Licence were individually considered as part of the review. The Review Plan, set out at Appendix A, details the risk assessments made for and review priority assigned to each key process and effectiveness criterion.

2.6 Approach

Our approach for this review involved the following activities, which were undertaken during the period November 2022 to February 2023:

- Utilising the Guidelines, development of a risk assessment, which involved discussions with key staff and review of documents to undertake a preliminary assessment of relevant controls
- Development of a Review Plan (see Appendix A) for approval by the ERA
- Correspondence and interviews with AEC's staff to gain an understanding of process controls in place (see Appendix B for staff involved)
- Site visit to the solar farm facilities and supporting Newman operations in the East Pilbara with a focus on understanding the generation assets, their function, normal mode of operation, age and an assessment of the facilities against the AMS review criteria
- Examination of documented policies and procedures for key functional requirements and consideration of their relevance to AEC's AMS requirements and standards (see Appendix B for reference listing)
- Consideration of the resourcing applied to maintaining those controls and processes
- Reporting of findings to AEC for review and response.

3. Summary of Ratings

In accordance with the Guidelines, the assessment of both the process and policy definition rating (refer to Table 1) and the performance rating (refer to Table 2) for each of the key AMS processes was performed using the below ratings.

Table 1: Process and policy rating scale

Rating	Description	Criteria
A	Adequately defined	• Processes and policies are documented • Processes and policies adequately document the required performance of the assets • Processes and policies are subject to regular reviews, and updated where necessary • The asset management information system(s) are adequate in relation to the assets being managed
B	Requires some improvement	• Processes and policies require improvement • Processes and policies do not adequately document the required performance of the assets • Reviews of processes and policies are not conducted regularly enough • The asset management information system(s) requires minor improvements (taking into consideration the assets being managed)
C	Requires substantial improvement	• Processes and policies are incomplete or require substantial improvement • Processes and policies do not document the required performance of the assets • Processes and policies are considerably out of date • The asset management information system(s) requires substantial improvements (taking into consideration the assets being managed)
D	Inadequate	• Processes and policies are not documented • The asset management information system(s) is not fit for purpose (taking into consideration the assets being managed).

Table 2: Performance rating scale

Rating	Description	Criteria
1	Performing effectively	• The performance of the process meets or exceeds the required levels of performance • Process effectiveness is regularly assessed and corrective action taken where necessary
2	Improvement required	• The performance of the process requires some improvement to meet the required level • Process effectiveness reviews are not performed regularly enough • Recommended process improvements are not implemented
3	Corrective action required	• The performance of the process requires substantial improvement to meet the required level • Process effectiveness reviews are performed irregularly, or not at all • Recommended process improvements are not implemented
4	Serious action required	• Process is not performed, or the performance is so poor the process is considered to be ineffective.

This report provides:

- A breakdown of each function of the AMS into sub-components as described in the Guidelines. This approach is taken to enable a more thorough review of key processes where individual components within a larger process can be of greater risk to the business therefore requiring different review treatment
- A summary of the ratings applied by the review (Table 3) for each of:
  - Asset management process and policy rating
  - Asset management performance rating.
- Detailed findings, including relevant observations and recommendations (Section 4). Descriptions of the effectiveness criteria can be found in section 4 and the Review Plan at Appendix A.

Table 3: AMS effectiveness summary

			Ratings	
Ref	Asset management process and effectiveness criteria	Review priority	Process and policy	Performance
1. Asset Planning			**A**	**1**
1.1	Asset management plan covers the processes in this table	Priority 4	A	1
1.2	Planning processes and objectives reflect the needs of all stakeholders and is integrated with business planning	Priority 4	A	1
1.3	Service levels are defined in the asset management plan	Priority 4	A	1
1.4	Non-asset operations (e.g. demand management) are considered	Priority 5	Not rated	Not rated
1.5	Lifecycle costs of owning and operating assets are assessed	Priority 5	A	1
1.6	Funding options are evaluated	Priority 5	A	1
1.7	Costs are justified and cost drivers identified	Priority 5	A	1
1.8	Likelihood and consequences of asset failure are predicted	Priority 2	A	1
1.9	Asset management plan is regularly reviewed and updated.	Priority 5	A	2
2. Asset creation and acquisition			**Not rated**	**Not rated**
2.1	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset options	Priority 4		
2.2	Evaluations include all life-cycle costs	Priority 4		
2.3	Projects reflect sound engineering and business decisions	Priority 4	Not rated	Not rated
2.4	Commissioning tests are documented and completed	Priority 4		
2.5	Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood	Priority 2		
3. Asset disposal			**Not rated**	**Not rated**
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process	Priority 5		
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken	Priority 5	Not rated	Not rated
3.3	Disposal alternatives are evaluated	Priority 5		
3.4	There is a replacement strategy for assets	Priority 4		

Ref	Asset management process and effectiveness criteria	Review priority	Ratings	
			Process and policy	Performance
4. Environmental analysis			**B**	**2**
4.1	Opportunities and threats in the asset management system environment are assessed	Priority 4	B	2
4.2	Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved	Priority 4	B	3
4.3	Compliance with statutory and regulatory requirements	Priority 4	A	1
4.4	Service standard (customer service levels etc) are measured and achieved.	Priority 4	A	1
5. Asset operations			**A**	**2**
5.1	Operational policies and procedures are documented and linked to service levels required	Priority 4	A	1
5.2	Risk management is applied to prioritise operations tasks	Priority 4	A	1
5.3	Assets are documented in an asset register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition	Priority 4	A	2
5.4	Accounting data is documented for assets [new criteria]	Priority 4	A	1
5.5	Operational costs are measured and monitored	Priority 4	A	1
5.6	Staff resources are adequate and staff receive training commensurate with their responsibilities	Priority 4	B	3
6. Asset maintenance			**A**	**2**
6.1	Maintenance policies and procedures are documented and linked to service levels required	Priority 4	B	2
6.2	Regular inspections are undertaken of asset performance and condition	Priority 2	A	1
6.3	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	Priority 2	B	2
6.4	Failures are analysed and operational/maintenance plans adjusted where necessary	Priority 2	A	2
6.5	Risk management is applied to prioritise maintenance tasks	Priority 2	A	1
6.6	Maintenance costs are measured and monitored	Priority 4	A	1
7. Asset management information systems			**A**	**1**
7.1	Adequate system documentation for users and IT operators	Priority 5	A	1
7.2	Input controls include suitable verification and validation of data entered into the system	Priority 4	A	1
7.3	Security access controls appear adequate, such as passwords	Priority 5	A	1
7.4	Physical security access controls appear adequate	Priority 5	A	1
7.5	Data backup procedures appear adequate and backups are tested	Priority 4	A	1
7.6	Computations for licensee performance reporting are accurate	Priority 5	Not rated	Not rated
7.7	Management reports appear adequate for the licensee to monitor licence obligations	Priority 5	A	1

Ref	Asset management process and effectiveness criteria	Review priority	Ratings	
			Process and policy	Performance
7.8	Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation	Priority 5	A	1
8. Risk management			**A**	**2**
8.1	Risk management policies and procedures exist and are applied to minimise internal and external risks	Priority 4	A	1
8.2	Risks are documented in a risk register and treatment plans are implemented and monitored	Priority 4	B	2
8.3	Probability and consequences of asset failure are regularly assessed	Priority 2	A	2
9. Contingency planning			**B**	**2**
9.1	Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks	Priority 2	B	2
10. Financial planning			**A**	**1**
10.1	The financial plan states the financial objectives and identifies strategies and actions to achieve those	Priority 4	A	1
10.2	The financial plan identifies the source of funds for capital expenditure and recurrent costs	Priority 5	A	1
10.3	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)	Priority 5	A	1
10.4	The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period	Priority 5	A	1
10.5	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	Priority 5	A	1
10.6	Large variances in actual/budget income and expenses are identified and corrective action taken where necessary	Priority 5	A	1
11. Capital expenditure planning			**A**	**1**
11.1	There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates	Priority 4	A	1
11.2	The capital expenditure plan provides reasons for capital expenditure and timing of expenditure	Priority 5	A	1
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	Priority 5	A	1
11.4	There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented	Priority 5	A	1
12. Review of asset management system			**A**	**2**
12.1	A review process is in place to ensure the asset management plan and the asset management system described in it remain current	Priority 5	A	2
12.2	Independent reviews (e.g. internal audit) are performed of the asset management system	Priority 5	A	2

4. Detailed findings and recommendations

The following tables contain:

- *Findings*: the reviewer's understanding of the process and any issues that have been identified during the review
- *Recommendations (where applicable)*: recommendations for improvement or enhancement of the process or control.

4.1 Asset Planning

Key process: Asset planning strategies are focused on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price)

Expected outcome: Integration of asset strategies into operational or business plans will establish a framework for existing and new assets to be effectively utilised and their service potential optimised

Overall Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

Effectiveness criteria	Findings	
1.1 Asset management plan covers the processes in this table	Through discussion with the Head of Operations, Alinta Energy and Operations Manager, Pilbara; consideration of AEC's business planning processes, and examination of Alinta Energy's Asset Management Policy, Alinta Energy's Asset Management Framework and AEC's Solar Farm (Chichester) FY2023 Asset Management Plan (**AMP**), we determined that: • AEC's business planning model accommodates its operation and maintenance of the Chichester Solar Facility in accordance with its contracted power purchase arrangements • AEC's FY2023 AMP: ○ Is consistent with Alinta Energy's company-wide Asset Management Framework, which is designed to align with ISO55000:2014, ISO 55001:2014 and ISO 55002:2014 and the British Publicly Available Specification (PAS) Asset Management Standard PAS 55-1:2008 ○ Provides guidance between the day-to-day activities within the facility and Alinta Energy's asset management strategy, including an overview of the major elements of the power generation assets ○ Sufficiently reflect each of the elements outlined in the rest of this Asset Planning process ○ Was last revised in June 2022 (although it formally remained in draft). Alinta Energy's Asset Management Framework provides for annual review of all of its AMPs.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)

Effectiveness criteria	Findings	
1.2 Planning processes and objectives reflect the needs of all stakeholders and is integrated with business planning	Through discussion with the Head of Operations, Alinta Energy and Operations Manager, Pilbara and consideration of AEC's business planning processes, we determined that: • AEC's business planning model accommodates its operation and maintenance of the Chichester Solar Facility assets considering its contractual arrangements and regulatory requirements • From a business planning perspective, AEC's asset management processes and mechanisms incorporate the requirements of its various stakeholders. In particular, we observed that AEC has: ○ Developed and maintained an appropriate AMP for operating and maintaining the various components of the solar facility to achieve performance over the life of the facility's assets. The AMP defines AEC's short to medium term plans, which are subject to review on an annual basis ○ Established Power Purchase Agreements (**PPA**) with its customer and related entity Alinta Energy Transmission (Roy Hill) Pty Ltd, outlining AEC's responsibilities for operating the facility's assets ○ A formal delegation of authority framework across the stakeholder functions (operations, finance, and compliance) is integrated into its SharePoint information storage portal for project task and expenditure approval.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
1.3 Service levels are defined in the asset management plan	Through discussion with the Head of Operations, Alinta Energy and Operations Manager, Pilbara and examination of AEC's AMP and contractual documentation, we determined that the facility's required service levels have been: • Summarised in the AMP, which are updated on a periodic basis to facilitate any changes of those service levels. The AMP references relevant operational information for each key item of equipment • Defined in AEC's maintenance standards maintained on SharePoint and integrated into the maintenance management system • Programmed into the Ellipse computerised maintenance management system to track routine maintenance requirements across all asset components.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
1.4 Non-asset operations (e.g. demand management) are considered	As the primary purpose of the Chichester Solar Facility is to generate power to meet its customers' requirements, there is no requirement or opportunity for AEC to consider non-asset options.	
	Process and Policy Rating: Not rated	**Performance Rating:** Not rated

Effectiveness criteria	Findings	
1.5 Lifecycle costs of owning and operating assets are assessed	Through discussion with the Head of Operations, Alinta Energy and Operations Manager, Pilbara and consideration of AEC's AMP and finance models, we determined that assessment of lifecycle costs of owning and operating the assets is reflected in the AMP, which addresses each major equipment component and provides specific details, including: • Operating and maintaining philosophy • Key life cycle issues and how they are addressed • Life cycle plan and critical outages • Performance improvement opportunities • Critical reinvestments • Retirement/disposal consideration at end of plant life • Capex and Opex forecast for a five-year period.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
1.6 Funding options are evaluated	Through discussion with the Head of Operations, Alinta Energy and Operations Manager, Pilbara; and examination of AEC's AMP and contractual documentation, we determined that: • Day-to-day operating expenses are funded from operating cash flows • Funding options are considered and evaluated using the Alinta Energy 'Request for Commitment' process within a dedicated Expenditure Project Delivery SharePoint Site • A Delegated Financial Authority matrix and automated workflow system within the Alinta Energy 'Request for Commitment' approval process helps ensure that fund requests above specified levels are required to be authorised by the appropriate level of management.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
1.7 Costs are justified and cost drivers identified	Through discussions with the Head of Operations and consideration of AEC's AMP strategy and model, we determined: • AEC's AMP includes detailed life cycle plans that identify and assess all life cycle costs and cost drivers associated with the facility • The facility's assets are managed using Ellipse, which records maintenance tasks and associated costs. Financial reporting is generated from Ellipse with budget vs actual analysis performed quarterly.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)

<table>
<tr><th>Effectiveness criteria</th><th colspan="2">Findings</th></tr>
<tr><td rowspan="2">1.8 Likelihood and consequences of asset failure are predicted</td><td colspan="2">Through discussion with the Head of Operations, Alinta Energy and Operations Manager, Pilbara; and examination of AEC's AMP and relevant supporting documentation, we determined the AMP is a tool used for predicting the likelihood and consequences of asset failure. Specifically, we determined that:
AEC's AMP details the operational and maintenance strategy, and risk mitigation actions for each key asset
Scheduled preventative maintenance provides for regular assessment of asset performance
A high level of priority is accorded to minimising instances of asset failure and the duration of any such failure to ensure performance targets are achieved.</td></tr>
<tr><td>Process and Policy Rating: Adequately defined (A)</td><td>Performance Rating: Performing effectively (1)</td></tr>
<tr><td rowspan="2">1.9 Asset management plan is regularly reviewed and updated.</td><td colspan="2">AEC's Solar Farm (Chichester) FY2023 AMP was created in 2021 and subsequently updated in June 2022 in accordance with Alinta Energy's Asset Management Policy and Framework.
The current AMP dated June 2022, which remained in draft, still indicated asset commissioning and handover to operations was yet to occur, with further changes (e.g. updated risk profile) to be made to the AMP once handover occurred. We expect the June 2022 version of the AMP could have more accurately captured the facility's changed circumstances, plus forecast timeframes and plans for addressing key elements such as updated risk assessments. This matter was discussed with AEC staff as an improvement opportunity.</td></tr>
<tr><td>Process and Policy Rating: Adequately defined (A)</td><td>Performance Rating: Improvement required (2)</td></tr>
</table>

4.2 Asset creation and acquisition

Key process: Asset creation/acquisition is the provision or improvement of assets

Expected outcome: The asset acquisition framework is economic, efficient and cost-effective; it reduces demand for new assets, lowers service costs and improves service delivery

Overall Process and Policy/Performance rating: Not rated

Findings: For the period subject to this review, AEC had not undertaken or contemplated any material asset creation and acquisition activities beyond the initial creation of the Solar Farm Facility and minor improvement projects. Over the next three to five years, AEC expects to continue to operate and maintain its existing assets and equipment (i.e. with no new or replacement assets), with the primary objective of maximising availability and energy production. Accordingly, AEC is not expected to require an asset creation and acquisition process in the foreseeable future.

4.3 Asset disposal

Key process: Asset disposal is the consideration of alternatives for the disposal of surplus, obsolete, under-performing or unserviceable assets

Expected outcome: The asset management framework minimises holdings of surplus and underperforming assets and lowers service costs. The cost-benefits of disposal options are evaluated

Overall Process and Policy/Performance rating: Not rated

Findings: The AEC Facility remains in the early phase of its life-cycle. No plans have been made to dispose of any of the facility's assets and there is a low likelihood of AEC disposing of these assets in the short-term.

4.4 Environmental analysis

Key process: Environmental analysis examines the asset management system environment and assesses all external factors affecting the asset management system

Expected outcome: The asset management system regularly assesses external opportunities and threats and identifies corrective action to maintain performance requirements

Overall Process and Policy/Performance rating: Requires some improvement (B) / Improvement Required (2)

Effectiveness criteria	Findings	
4.1 Opportunities and threats in the asset management system environment are assessed	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; and consideration of relevant supporting documentation, we determined that AEC identifies and assesses opportunities and threats within its AMS through records of: • Applicable legal and regulatory obligations as documented in the Alinta Energy Solar Farm (Chichester) AMP under the Regulatory Compliance Summary • Risks and threats to the asset's operations in the AMP • Environmental and safety related risks and incidents in the Alinta Group InControl incident reporting system. For the Chichester Solar Facility, a significant part of Asset Management is and will continue to be, based on risk management and reduction. The primary focus of AEC's risk reviews is personnel safety, plant safety, process safety, environment safety and revenue loss minimisation. As the facility is fairly new, there has been limited incident reporting to date. However, significant modifications of plant layout may need to be considered for purposes of management of Wild Fire risk that is currently rated as "High" and also for effective implementation of a Vegetation Management Plan. Timelines and budget planning to implement these changes has not yet been put in place by AEC. *This matter was discussed with AEC staff as an improvement opportunity.*	
	Process and Policy Rating: Requires some improvement (B)	**Performance Rating:** Improvement required (2)

Effectiveness criteria	Findings	
4.2 Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; and examination of relevant supporting documentation, we determined that: • The tracking of work orders and performance KPIs on site is controlled through Ellipse, which reports on the key performance aspects of the overall Alinta network, which includes the Chichester Solar Farm, Newman Power Station and related transmission assets. Facility specific monthly reports are prepared that include aspects such as availability and production losses, maintenance costs and any EOHS incidents. Any deviations from budget or contractual KPIs are highlighted and explained, where appropriate. However, one of the KPIs for the Solar Farm as outlined in the AMP is to ensure that performance degradation does not exceed 0.5% per annum. The current Weekly Performance Dashboard does not show the tracking of this KPI. *This matter was discussed with AEC staff as an improvement opportunity* • Chichester Solar Farm operates under a shared services agreement with Fortescue Metals Group for: ○ Site access ○ Emergency services ○ Medical services ○ Communications frequencies ○ Potable water ○ Raw water for panel cleaning ○ Flights and accommodation ○ Access to diesel for fleet operations ○ Wastewater extraction from transformer bunds • AEC relies on the emergency response processes developed for the Newman Power Station (per the Emergency Response Plan (ERP) version 2.8 dated March 2022) in which Site Managers are responsible for the investigation and analysis of environmental incidents. To accommodate AEC's specific requirements and shared services arrangements, it is appropriate to either develop a separate ERP for the Solar Farm, or modify the Newman Power Station ERP. *This matter was discussed with AEC staff as an improvement opportunity* • AEC has not planned or undertaken emergency response training and drills since commencement of operations in November 2021. *Refer to **Recommendation 1/2022** at Section 5.6 for further detail of this matter and the corrective action required.*	
	Process and Policy Rating: Requires some improvement (B)	**Performance Rating:** Corrective action required (3)

Effectiveness criteria	Findings	
4.3 Compliance with statutory and regulatory requirements	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; and examination of relevant supporting information, we determined that: • AEC has designed its processes and practices to operate and monitor its performance in accordance with the following statutory legislation and licences: o Occupational Health and Safety Act 1984 and supporting Regulations (to 31 March 2022) and the Work Health and Safety Act 2020 and supporting regulations (from 1 April 2022), enabled through Alinta Energy's groupwide health and safety management framework o Environmental Protection Act. Alinta Energy's Environmental Management Framework accommodates AEC's commitment to environmental protection o Aboriginal Heritage Act o Waste Avoidance and Resource Recovery Act and subordinate legislation To date, no significant incidents or breaches have been recognised and reported.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
4.4 Service standard (customer service levels etc) are measured and achieved	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; and consideration of AEC's PPAs, we determined that AEC's customer service levels and performance requirements are defined in the PPAs. Service levels are monitored via weekly performance dashboards and monthly performance reports that are provided to management for the entire Alinta network, including Chichester Solar Farm. In relation to community obligations, AEC operates and monitors its operations in accordance with 4.3 above.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)

4.5 Asset operations

Key process: Asset operations is the day-to-day running of assets (where the asset is used for its intended purpose)

Expected outcome: The asset operation plans adequately document the processes and knowledge of staff in the operation of assets so service levels can be consistently achieved

Overall Process and Policy/Performance rating: Adequately defined (A) / Improvement required (2)

<table>
<tr><th>Effectiveness criteria</th><th colspan="2">Findings</th></tr>
<tr><td rowspan="2">5.1 Operational policies and procedures are documented and linked to service levels required</td><td colspan="2">Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; inspection of relevant documentation and observations during our site visit, we determined that:
The following assumptions are the basis for the Operations and Maintenance (O&M) Program used for the Chichester Solar Facility:
Nominal 25-year asset life
five-year asset planning horizon
Underpinning Opex & Capex budgets approved
Solar year one capacity of 60MW AC
Solar degradation of 0.5% per annum as outlined in the project business case and Debt Financial Model
3 x water washes annually as per the Debt Financial Model
Inverters are to have service level agreements in place with Ingeteam for the useful economic life of the asset
Maintenance routines for transformers are to be based on the AE Transformer Maintenance Standard
Implementation of OEM service requirements are tracked in Ellipse
Operational policies and procedures are documented collectively through AEC’s AMP, its PPAs and the Power Generation Operational Plan
AEC’s service level requirements are either defined explicitly (e.g. firm or non-firm purchase) or derived from PPAs and documented in the AMP
Operational procedures and manuals are kept on site as well as on the shared drive
Reliability and maintenance requirements are also set up in the AMP
Reporting dashboards are used to provide a weekly summary of the entire Alinta network, including Chichester Solar Farm.</td></tr>
<tr><td>Process and Policy Rating: Adequately defined (A)</td><td>Performance Rating: Performing effectively (1)</td></tr>
</table>

Effectiveness criteria	Findings	

5.2 Risk management is applied to prioritise operations tasks	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; inspection of relevant documentation and observations during our site visit, we determined that:
	• AEC has maintained an established risk management framework and process that is applied prior to initiating changes in management of change, planned outages, as well as lower level (work order level) execution
	• AEC's operational risk profile is used to guide operational decisions e.g. dispatching, or any changes initiated through management of change
	• AEC's Maintenance Work Process Manual document defines how operations and maintenance tasks are given priority ratings, whereby tasks addressing higher risk issues are performed first in order, followed by lower priority tasks. The timelines defined for task priorities are:
	  ○ Priority 1 (Extreme - Starts Immediately - Breaks Daily Schedule)
	  ○ Priority 2 (High - Starts within 1 week - Breaks Weekly Schedule and Finishes within 2 weeks of start)
	  ○ Priority 3 (Medium - Starts within 3 weeks - Finishes within 4 weeks of start)
	  ○ Priority 4 (Low - Starts within 7 weeks - Finishes within 20 weeks of start)
	  ○ Priority 5 (Planned Outage Activity included in the scope of work)
	• The asset strategy applied to the Chichester Solar Facility has a significant focus on regular visual, thermographic and acoustic monitoring of the assets
	• Maintenance strategies and operational risks are to be reviewed and updated annually to ensure practices are optimised to meet changing operational conditions
	• Any unavailability of the solar farm for reasons other than force majeure or permitted outages may increase the hours of operation of the Jenbacher reciprocating engines, the Trent or Frame 6B machines, potentially bringing forward periods of major maintenance and decreasing the overall station efficiency
	We note that whilst the solar farm has been designed to provide a nominated proportion of the Fortescue Metals Group forecast load, if aggregate demand results in higher loads and additional gas turbine operation, further consideration and management of operating hours, costs and associated major maintenance events will need to be contemplated across the Alinta network.	

	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)

Effectiveness criteria	Findings	

5.3 Assets are documented in an asset register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; inspection of relevant documentation and observations during our site visit, we determined that:
	• Work is in progress to ensure:
	  ○ Chichester Solar facility and transmission assets are registered in a fixed assets and equipment register in Ellipse, which holds detailed information for each major component of plant (under an asset hierarchy layout, such as assets' unique asset identifier details, operational history, equipment condition, cost/financial data, and maintenance intervals)
	  ○ The physical and structural condition of those assets are recorded in a plant condition dashboard
	No further recommendation is made by this review in relation to this matter.
	• A three weekly review meeting is held involving heads of operations, engineering, planning and finance, for capital projects and asset condition review.	

	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Improvement required (2)
5.4 Accounting data is documented for assets	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; and consideration of AEC's asset accounting practices, we determined that AEC's asset register and corporate records capture relevant information for accounting purposes, including: • Acquisition and retirement date • Original, historic and current capital cost • Depreciation rates and written down values.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
5.5 Operational costs are measured and monitored	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; examination of relevant documentation and observations during our site visit, we determined that AEC applies processes to measure and monitor operational costs, which include: • Monthly profit and loss extracts provided to the Head of Operations, Alinta Energy, with analysis on total operational costs and variances between budgeted costs and actuals • Automatically assignment of costs against assets based on allocated work orders, with external costs charged to associated cost centres • Recording operational spend in Ellipse.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)

Effectiveness criteria	Findings	
5.6 Staff resources are adequate and staff receive training commensurate with their responsibilities	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; examination of relevant documentation and observations during our site visit, we determined that: • The Chichester Solar Facility is integrated with the Newman Power Station for resourcing and training • Staff have detailed job descriptions with defined responsibilities • Staff mandatory training is registered in a skills/training matrix. We observed that the training matrix at the time of our site-visit showed several overdue training requirements (refer to further details below) • Contractor training and competence is managed using Rapid Global system • Records are maintained for the induction of personnel and contractors, as appropriate to their role on site. For example, a maintenance contractor is required to undergo a more detailed induction than an escorted visitor to ensure they understand the procedures for working on site, such as work permit procedures • The training officer plans the training together with the plant manager • Non-mandatory training is registered in staff personal development plans and KPIs. **Staff training and emergency response drills** At the time of our site visit, AEC's training matrix showed some overdue training. Of particular note, a significant risk to AEC's operations relates to the training requirements for site emergency response, which was recorded as overdue for all staff assigned to operations managed from the Newman Power Station (which includes the Chichester Solar Facility). We consider this issue reflects a lack of dedicated effort to ensure training requirements are maintained. Corrective action is required to improve AEC's performance against the requirements of its emergency response procedures. **Recommendation 1/2022 (B3 Rating)** *AEC:* *(a) Schedule staff training to clear all overdue requirements with special emphasis given to site-specific emergency response drills* *(b) Ensure sufficient resources are allocated to maintaining key training requirements and emergency response drills.* Potential improvement opportunity We also observed during our site-visit that there was no dedicated Health and Safety Officer at the Newman site, whose job-description would include maintaining the training matrix up-to-date and ensuring all aspects of staff training and skills are covered including undertaking of Emergency Response Drills to test the effectiveness of the Shared Services Agreement with Fortescue Metals Group in place for provision of site access, emergency services and medical services. This may have contributed to the extent of overdue training. *This matter was discussed with AEC staff as a potential improvement opportunity.*	
	Process and Policy Rating: Requires some improvement (B)	**Performance Rating:** Corrective action required (3)

4.6 Asset maintenance

Key process: Asset maintenance is the upkeep of assets

Expected outcome: The asset maintenance plans cover the scheduling and resourcing of the maintenance tasks so work can be done on time and on cost

Overall Process and Policy/Performance rating: Requires some improvement (B) / Improvement required (2)

Effectiveness criteria	Findings

6.1 Maintenance policies and procedures are documented and linked to service levels required	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; examination of relevant documentation and observations during our site visit, we determined that:
	• AEC's AMP outlines the basis of the power facility configuration and transmission assets operations and maintenance strategy and program. The AMP requires updating to incorporate post commissioning operational risks/opportunities and current operational forecasts to provide the nominated forecast load. *This matter was discussed with AEC staff as an improvement opportunity*
	• Any unavailability of the solar farm for reasons other than force majeure or permitted outages may increase the hours of operation of the Jenbacher reciprocating engines, the Trent or Frame 6B machines located at the Newman Power Station potentially bringing forward periods of major maintenance and decreasing the overall station efficiency, hence the need to reference the AMP for the Newman Power Station when considering the operation of this Solar Facility
	• Being a fairly new facility, work is ongoing to develop site-specific asset maintenance strategies, policies and procedures for all major assets and maintenance activities of the facility and will be available to staff via Alinta Energy's SharePoint platform in due course
	• Condition monitoring and visual inspection is the preferred maintenance strategy with on-line condition monitoring to be investigated and implemented
	• Some maintenance plans are loaded into the maintenance module of AECs Ellipse enterprise asset management system. The Ellipse system references major equipment maintenance procedures, equipment details, maintenance intervals, costs and equipment history and is linked to service levels required
	• AEC's service levels requirements are documented in its AMP
	• Regular maintenance of PV modules include:
	  ○ Inspections for damage, discoloration, delamination, corrosion or vegetation growth
	  ○ Washing – the current Debt Financing Model assumes 3 washes per annum. The need for water washing shall be condition based
	• The tracker system is to be subject to regular mechanical and electrical inspections

Effectiveness criteria	Findings	
	6.1 (cont.) • Ingeteam requires both quarterly and annual preventative maintenance for its supplied PCS's and Inverters • List of Statutory work dictated by the regulatory requirements is outlined in the AMP • Monthly performance reports have KPIs linked to service level requirements. **Cleaning of panels** We observed during our site-visit that solar panels were covered in red dust and that there was insufficient water supply via the shared services agreement to cater for washing off the red-dust from the panels. AEC's AMP states that water wash of panels is required 3 times annually for purposes of compliance to the project business case and to the debt financial model and that the measurable KPI is to not exceed 0.5% performance degradation from this facility. AEC may need to address this issue by establishing a water source such as bore wells, water treatment plant/s and water reticulation and sprinkler system that can provide the required water for washing the panels at regular intervals during hot and dry seasons, and also be able to assist with fire protection and vegetation management at the facility. AEC should also consider establishing a timeline to update the Chichester AMP document, and develop the full suite of maintenance plans, policies and procedures for this solar facility. *This matter was discussed with AEC staff as an improvement opportunity.*	
	Process and Policy Rating: Requires some improvement (B)	**Performance Rating:** Improvement required (2)
6.2 Regular inspections are undertaken of asset performance and condition	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; examination of relevant documentation and observations during our site visit, we determined that: • The asset strategy applied to the Chichester Solar Farm has a significant focus on regular visual, thermographic and acoustic monitoring of the assets • Regular inspections are carried out at the plant in forms of daily rounds, statutory inspections and planned outages • Any changes required on the inspections are implemented in the maintenance standards • Condition-based inspection are carried out • Regular reviews of plant/asset conditions are carried out and the plant condition dashboard updated. We sighted several monthly performance reports, which reference inspection and other maintenance activity being completed.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)

Effectiveness criteria	Findings	
6.3 Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; examination of relevant documentation and observations during our site visit, we determined that: • For all core equipment and assets, the Ellipse system contains plans for scheduled maintenance as well as required emergency and corrective works • All maintenance work undertaken is recorded in the Ellipse system • Annual work plan compliance for its first-year operation is yet to be determined given that the 3 annual water wash of solar panels, as outlined in the Chichester Solar Facility AMP, was not able to be completed due to insufficient water supply • Being a fairly new facility, the maintenance history is yet to be populated • AEC's PPAs require that planned maintenance must minimise the loss of solar generation resulting from planned maintenance across the whole network, and Alinta must attempt to coordinate the outages with all parties to AEC's PPAs. Further, when undertaking planned maintenance, AEC must maintain the solar field such that no more than 12MW of solar panels is out of service at a time and, to the maximum extent possible, undertake activities between the hours of 5pm and 5am • The CSF Vegetation Management Plan requires 3 monthly maintenance routine inspection followed by chemical treatment and weed removal. Evidence of compliance to this requirement could be challenging given the current configuration of the facility with above ground cabling and interconnecting infrastructure between solar arrays. At the time of our site visit, the Operations Manager Pilbara was considering modifications required to facilitate compliance with the Vegetation Management Plan. Although we observed evidence of no major non-compliance through examination of a sample of Monthly Performance Reports, there is improvement opportunity for AEC to address issues relating to water washing solar panels and to address improved methods for vegetation management. *This matter was discussed with AEC staff as an improvement opportunity.*	
	Process and Policy Rating: Requires some improvement (B)	**Performance Rating:** Improvement required (2)

Effectiveness criteria	Findings	

6.4 Failures are analysed and operational/maintenance plans adjusted where necessary	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; and examination of records of asset/equipment failures during the review period, we determined that:
	• AEC's maintenance procedures provide for:
	  ○ Failures to be analysed and operational/maintenance plans adjusted to reduce the likelihood of the failure to be repeated
	  ○ Emergency and corrective actions to be taken, followed by a root cause analysis of the failure event
	  ○ Unplanned outages that result in a loss of availability or production are required to be investigated and reported into AEC's InControl incident reporting system. The incident report is to include an explanation of the outage and possible causes, and who is responsible for any investigation and what actions are in place to correct the fault. Where appropriate, a work order is to be raised to undertake preventative actions to limit the fault's recurrence. Incident reports are prepared by the person who found the fault, reviewed by a supervisor, then assigned to the Operations Manager for investigating further corrective actions
	• AEC maintains evidence of failures being recognised, analysed and treated/corrected. We sighted evidence of an Asset Damage Report relating to an electrical fire and arc flash event. However this incident did not consider a root cause analysis. Evidence of root cause analyses were also not available for forced outages such as DC contactor faults or stop events. By including at least a consideration of root cause analysis of every failure, AEC will further improve its understanding of its assets. *This matter was discussed with AEC staff as an improvement opportunity.*	

	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Improvement required (2)

Effectiveness criteria	Findings	

6.5 Risk management is applied to prioritise maintenance tasks	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; examination of relevant documentation and observations during our site visit, we determined that:
	• AEC implemented the following risk management practices (noting the Chichester Solar Facility which is fairly new):
	  ○ AEC's Maintenance Work Process Manual document defines how operations and maintenance tasks are given priority ratings, whereby tasks addressing higher risk issues are performed first in order, followed by lower priority tasks. The timelines defined for task priorities are:
	  ▪ Priority 1 (Extreme - Starts Immediately - Breaks Daily Schedule)
	  ▪ Priority 2 (High - Starts within 1 week - Breaks Weekly Schedule and Finishes within 2 weeks of start)
	  ▪ Priority 3 (Medium - Starts within 3 weeks - Finishes within 4 weeks of start)
	  ▪ Priority 4 (Low - Starts within 7 weeks - Finishes within 20 weeks of start)
	  ▪ Priority 5 (Planned Outage Activity included in the scope of work).
	  ○ All projects contain risk assessments
	  ○ The Plant condition dashboard is regularly reviewed, updated, and used in planning operations and maintenance activities
	• Weekly scheduling meetings are used to set work time frames based on work order prioritisation and scheduled outages.
	• The facility's maintenance metrics are tracked with the overall Plant Availability and Reliability metrics for the entire Alinta network
	• The facility has maintained compliance to its performance targets since it commenced operation in 2021.	

	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
6.6 Maintenance costs are measured and monitored	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; and examination of relevant documentation, we determined that AEC has applied processes to measure and monitor maintenance costs, which include: • Monthly profit and loss extracts provided to the Head of Operations, Alinta Energy, with analysis on total operational costs and variances between budgeted costs and actuals • Automatically assignment of costs against assets based on allocated work orders, with external costs charged to associated cost centres • Recording operational and maintenance spend in Ellipse • Benchmarking of maintenance costs, although this is yet to occur as the facility is fairly new.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)

4.7 Asset management information systems

Key process: An asset management information system is a combination of processes, data and software supporting the asset management functions

Expected outcome: The asset management information system provides authorised, complete and accurate information for the day-to-day running of the asset management system. The focus of the review is the accuracy of performance information used by the licensee to monitor and report on service standards

Overall Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

<table>
<tr><th>Effectiveness criteria</th><th colspan="2">Findings</th></tr>
<tr><td rowspan="2">7.1 Adequate system documentation for users and IT operators</td><td colspan="2">Through discussions with AEC staff and consideration of relevant IT security system documentation, we observed that:
AEC utilises the Ellipse computerised maintenance management system and monitors live plant performance through Alinta Energy’s Honeywell Experion software
Alinta Energy maintains technical documentation for the Ellipse and Honeywell Experion applications, with that documentation readily available to AEC
AEC is also supported by Alinta Energy’s Group IT policies and procedures, which are stored on AEC’s SharePoint site and are readily accessible for all users.</td></tr>
<tr><td>Process and Policy Rating: Adequately defined (A)</td><td>Performance Rating: Performing effectively (1)</td></tr>
<tr><td rowspan="2">7.2 Input controls include suitable verification and validation of data entered into the system</td><td colspan="2">Through discussions with AEC staff and consideration of relevant IT security system documentation, we observed that:
AEC’s Ellipse system maintains a series of input validation checks
AEC applies a range of data verification and validation controls and techniques (including reconciliations and analyses) to provide additional assurances over the completeness, accuracy and validity of data entered into AEC’s core systems.</td></tr>
<tr><td>Process and Policy Rating: Adequately defined (A)</td><td>Performance Rating: Performing effectively (1)</td></tr>
</table>

Effectiveness criteria	Findings	
7.3 Security access controls appear adequate, such as passwords	Through discussions with AEC staff and consideration of Alinta Energy's relevant IT security and access management policies, procedures and standards, we observed that in relation to AEC's Ellipse and Honeywell systems: • The process of granting and managing access is undertaken online through Alinta Energy's IT helpdesk. Access requests are required to be approved by the relevant departmental head prior to being processed by IT • End-users are granted the minimum level of access privileges required to perform their job function and to prevent segregation of duties conflicts • Appropriate password requirements are maintained to authenticate user access to the Alinta network and the Ellipse and Honeywell systems. Additional authentication is required for remote user access • Staff are made aware of the consequences for breach of policy and misuse of user privileges.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
7.4 Physical security access controls appear adequate	Through discussion with the Head of Operations, Alinta Energy and Operations Manager, Pilbara; consideration of Alinta Energy's relevant IT security and access management policies, procedures and standards and observations during our site visit to the Chichester site and supporting Newman operations, we observed that AEC has established and maintained appropriate processes and procedures relating to the access of facilities and the physical protection of information assets and systems. Specifically in the context of access to computer server rooms and other control systems on site, we observed that: • Access to the Newman site operations building and Chichester site control room is restricted by security fencing and swipe card entry to each premises • General safety precautions are maintained to contain fire and other damaging events in computer rooms on site • Visitors are required to be registered and be accompanied by AEC staff.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
7.5 Data backup procedures appear adequate and backups are tested	Through discussions with AEC staff and consideration of relevant Alinta Energy IT security system documentation, we observed that procedures for managing data backup and data restore of AEC servers have been established and maintained in accordance with accepted industry practice for : • Scheduling and executing daily backups of production data • Secure management of backup data and restoration of data • Testing of data recovery and restoration procedures.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)

Effectiveness criteria	Findings	
7.6 Computations for licensee performance reporting are accurate	AEC's asset management information system does not directly provide data used in any computation related to its licence performance reporting.	
	Process and Policy Rating: Not rated	**Performance Rating:** Not rated
7.7 Management reports appear adequate for the licensee to monitor licence obligations	Through discussions with AEC staff and consideration of relevant supporting documentation and management reporting procedures, we determined that: • AEC's Ellipse and Honeywell Experion systems are capable of generating a substantial variety of daily, weekly, monthly and ad hoc reports, including for plant operations, routine and first line intervention maintenance and generation activity • Management reports relating to the operation and performance of the facility are produced on a scheduled basis and can also be produced on request.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
7.8 Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation	Through discussions with AEC staff and consideration of Alinta Energy's relevant IT security policies, procedures and standards, we observed that AEC has established and maintained appropriate processes and procedures relating to the protection of information assets and systems, including: • Comprehensive user access controls, including user permissions and remote access • Master service agreements and non-disclosure agreements to enable sharing of restricted or confidential data with third parties • Contemporary cyber security processes and procedures.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)

4.8 Risk management

Key process: Risk management involves the identification of risks and their management within an acceptable level of risk

Expected outcome: The risk management framework effectively manages the risk that the licensee does not maintain effective service standards

Overall Process and Policy/Performance rating: Requires some improvement (B) / Improvement required (2)

<table>
<tr><th>Effectiveness criteria</th><th colspan="2">Findings</th></tr>
<tr><td rowspan="2">8.1 Risk management policies and procedures exist and are applied to minimise internal and external risks</td><td colspan="2">Through discussion with the Head of Operations, Alinta Energy and Operations Manager, Pilbara; and consideration of AEC's risk management and reporting framework, we determined that:
Alinta Energy's Enterprise Risk Management Framework applies throughout Alinta Energy's business structure, including AEC's operations. In particular, all maintenance activities are based on AEC's risk management approach, whereby the maintenance tasks addressing higher risk issues are performed first in order, followed by lower priority tasks. We sighted several examples of risk based practices being applied to AEC's monitoring of asset operations, asset condition and incidents. AEC maintains appropriate records of those activities
AEC's AMP includes several references to risk assessment and management activities, including material risks, key business risks and key asset risks. Reference is made to development of risk mitigation options and risk reduction recommendations once operational experience is gained
Based on our examination of the risk management processes in place, we determined that AEC has established an appropriate system for identifying and managing risks.</td></tr>
<tr><td>Process and Policy Rating: Adequately defined (A)</td><td>Performance Rating: Performing effectively (1)</td></tr>
</table>

Effectiveness criteria	Findings	

8.2 Risks are documented in a risk register and treatment plans are implemented and monitored	Through discussion with the Head of Operations, Alinta Energy and Operations Manager, Pilbara; consideration of AEC's risk management and reporting framework and examination of AEC's risk records, we determined that:
	• AEC uses several references and applications to capture its material and operational risks, including:
	  ○ Its AMP, which includes several references to risk assessment and management activities, including material risks and risk mitigation options and plans
	  ○ Alinta Energy's Power Generation Fleet reports material Asset Fleet risks on a quarterly basis, including material risks, key business risks and key asset risks
	  ○ A Risk Management SharePoint tool, which rates site, environmental and personnel risks and summarises treatment action and/or requirements. This tool had not been adequately used to capture all key AEC specific risks during the period to 30 September 2022. AEC acknowledges that work is required to identify, assess and manage risks relevant to AEC's operations, particularly since the facility had been operating since November 2021. *This matter was discussed with AEC staff as an improvement opportunity*
	  ○ A Plant Condition SharePoint tool, which rates plant condition risks and summarises treatment action and/or requirements.
	• There is little evidence of risk status and risk treatment plans being monitored e.g. management of risks is not consistently featured in operational reporting. AEC can make better use of its understanding of the Facility's risk profile, to assist with oversight and decision making. *This matter was discussed with AEC staff as an improvement opportunity*
	• AEC has not maintained a single, clear reference to the complete suite of risk records and registers that make up its risk profile. Accordingly, it can be a challenging task to form a complete view of the facility's risk profile at any one point in time. A project is currently being undertaken by Alinta Energy to expand the use of its InControl platform (which is currently used to record hazards, incidents and operational events) as a single risk register for each site. This enhancement should facilitate that more complete view of the facility's risk profile at any one point in time. *No further recommendation is made by this review in relation to this matter.*	

	Process and Policy Rating: Requires some improvement (B)	**Performance Rating:** Improvement required (2)

Effectiveness criteria	Findings	

8.3 Probability and consequences of asset failure are regularly assessed	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; examination of AEC's AMP and consideration of AEC's asset planning and risk management practices, we determined that AEC has applied the following mechanisms for identifying and assessing the consequence and likelihood of facility asset failure:
	• AEC's AMP is a major tool used for predicting the likelihood and consequences of asset failure. The AMP considers each major item of equipment and provides specific details of its operation and maintenance strategy and key lifecycle issues and remedial plans
	• AEC's maintenance procedures provide for:
	  ○ Failures to be analysed and operational/maintenance plans adjusted to reduce the likelihood of the failure to be repeated
	  ○ Emergency and corrective actions to be taken, followed by a root cause analysis of the failure event
	  ○ Unplanned outages that result in a loss of availability or production are required to be investigated and reported into AEC's InControl incident reporting system. The incident report is to include an explanation of the outage and possible causes, and who is responsible for any investigation and what actions are in place to correct the fault. Where appropriate, a work order is to be raised to undertake preventative actions to limit the fault's recurrence. Incident reports are prepared by the person who found the fault, reviewed by a supervisor, then assigned to the Operations Manager for investigating further corrective actions
	  ○ A high level of priority is accorded to minimising instances of asset failure and the duration of any such failure
	• As detailed at item 6.4 of this report, AEC maintains evidence of failures being recognised, analysed and treated/corrected. We sighted evidence of an Asset Damage Report relating to an electrical fire and arc flash event. However this incident did not consider a root cause analysis. Evidence of root cause analyses were also not available for forced outages such as DC contactor faults or stop events. By including at least a consideration of root cause every failure analysis, AEC will further improve its understanding of its assets. *This matter was discussed with AEC staff as an improvement opportunity*
	The management structures, skills and resources assigned by AEC to the required asset management processes appear to be appropriate for enabling the regular assessment of the probability and consequences of asset failure.	

	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Improvement required (2)

4.9 Contingency planning

Key process: Contingency plans document the steps to deal with the unexpected failure of an asset

Expected outcome: Contingency plans have been developed and tested to minimise any major disruptions to service standards

Overall Process and Policy/Performance rating: Requires some improvement (B) / Improvement required (2)

Effectiveness criteria	Findings	
9.1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks	Through discussion with the Head of Operations, Alinta Energy, Operations Manager, Pilbara and Chichester Solar Plant Supervisor; and examination of AEC's emergency response and contingency planning mechanisms, we determined that: • A key objective of AEC's operations is to maintain the facility's availability and to maximise the supply of electricity • AEC's risk records capture higher risks relating to potential major disruption to operations, including equipment failure, unavailability of assets or personnel, physical harm to personnel or assets, or other significant incidents • Contingencies are in place for major business operational risks relating to fuel supply and spares, however adequate contingencies have not been developed to address water supply limitations. *This matter was discussed with AEC staff as an improvement opportunity* • AEC has access to the emergency response processes developed for the Newman Power Station (per the Emergency Response Plan (ERP) version 2.8 dated March 2022), which provides guidance for all probable hazards, with incidents grouped by type and assigned a specific colour code in accordance with Australian Standard AS3745. As detailed at sections 4.2 and 5.6 above ○ To accommodate AEC's specific requirements and shared services arrangements, it is appropriate to either develop a separate ERP for the Solar Farm, or modify the Newman Power Station ERP ○ AEC has not planned or undertaken emergency response training and drills since commencement of operations in November 2021. Although this matter requires correction per Recommendation 1/2022, as it has less impact on AEC's contingency planning arrangements, a Performance Rating of "Improvement Required (2)" is appropriate. • Alinta Energy has a Cybersecurity Business Continuity Management Standard in place.	
	Process and Policy Rating: Requires some improvement (B)	**Performance Rating:** Improvement required (2)

4.10 Financial planning

Key process: Financial brings together the financial elements of the service delivery to ensure its financial viability over the long term

Expected outcome: The financial plan is reliable and provides for the long-term financial viability of the services

Overall Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

<table>
<tr><th>Effectiveness criteria</th><th colspan="2">Findings</th></tr>
<tr><td rowspan="2">10.1 The financial plan states the financial objectives and identifies strategies and actions to achieve those</td><td colspan="2">Through consideration of AEC's asset and financial planning mechanisms and examination of its AMP, we observed that:
AEC's financial plan takes the form of an annual operational budget, prepared on a rolling five year basis to reflect its financial objectives and strategies that are driven by its contractual agreements for generation and supply of electricity
The financial plan outlines the financial elements of the facility's operations to reflect its financial viability over the long term
AEC's AMP reflects the business objectives outlined in its business plans.</td></tr>
<tr><td>Process and Policy Rating: Adequately defined (A)</td><td>Performance Rating: Performing effectively (1)</td></tr>
<tr><td rowspan="2">10.2 The financial plan identifies the source of funds for capital expenditure and recurrent costs</td><td colspan="2">Through consideration of AEC's financial planning mechanisms and examination of its AMP, we determined that:
The AEC annual budget is aligned with AEC's overall business plans
Operational cash flows are retained for budgeted maintenance and capital expenditure, based on retained funds or by submission through the Alinta Energy corporate structure for non-budgeted expenditure.</td></tr>
<tr><td>Process and Policy Rating: Adequately defined (A)</td><td>Performance Rating: Performing effectively (1)</td></tr>
<tr><td rowspan="2">10.3 The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)</td><td colspan="2">Through consideration of AEC's financial planning mechanisms, and inspection of AEC's five-year plan, profit and loss report and its AMP we determined that:
AEC's financial plan constitutes a summary of budgeted income and expenditure from the supply of electricity under its contractual agreements, which is prepared and updated annually and includes a rolling forecast for the next five years
An income statement and a position statement are prepared as part of consolidated financial statements on a six-monthly and annual basis
A monthly Profit and Loss report is generated which provides a detailed breakdown of financial projections.</td></tr>
<tr><td>Process and Policy Rating: Adequately defined (A)</td><td>Performance Rating: Performing effectively (1)</td></tr>
</table>

Effectiveness criteria	Findings	
10.4 The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period	Through consideration of AEC's financial planning mechanisms, we determined that AEC's financial plan: • Is prepared on an annual basis and updated for the projections of income and expenses based on five year outage and maintenance schedules • Includes a summary of planned capital expenditure projects for the next five years with a brief description of the intended purpose of the project • Forms part of Alinta Energy's budgeting and forecasting processes, which assess costs associated with overall fleet asset life.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
10.5 The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	Through consideration of AEC's annual financial plans, we observed that those plans: • Provide a sufficient level of detail relating to forecast operational, maintenance and administrative costs. i.e. operations maintenance and administration expenses on a rolling five year basis • Include a summary of current and planned capital expenditure projects over the following five years, with a brief description of each project's purpose and assumptions.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
10.6 Large variances in actual/budget income and expenses are identified and corrective action taken where necessary	Through consideration of AEC's financial planning and monitoring mechanisms, we observed that actual versus budgeted expenditure is monitored on a monthly basis, with variances identified and investigated where required to determine whether corrective action is required.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)

4.11 Capital expenditure planning

Key process: The capital expenditure plan provides a schedule of new works, rehabilitation and replacement works, together with estimated annual expenditure for these works over the next five or more years. Since capital investments tend to be large and lumpy, projections would normally be expected to cover at least 10 years, preferably longer. Projections over the next five years would usually be based on firm estimates

Expected outcome: The capital expenditure plan provides reliable forward estimates of capital expenditure and asset disposal income. Reasons for the decisions and for the evaluation of alternatives and options are documented

Overall Process and Policy/Performance rating: Adequately defined (A) / Performing effectively (1)

Effectiveness criteria	Findings	
11.1 There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates	Through discussion with the Head of Operations, Alinta Energy and consideration of AEC's capital planning procedures, and examination of the capital expenditure plan and the AMP we determined that: • A capital expenditure plan is included in the annual financial plan • Capital expenditure planning is undertaken along with financial planning on a rolling five year basis • The plan provides information on the amount, purpose and description of budgeted capital expenditure • The plan does not provide information on roles and responsibilities, but they can be found in AEC's business plans and work orders.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
11.2 The capital expenditure plan provides reasons for capital expenditure and timing of expenditure	Through consideration of AEC's capital planning procedures, we determined that AEC's capital expenditure plan specifies the reasons for the capital expenditure and the financial year in which the capital expenditure amount is planned.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
11.3 The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	Through consideration of AEC's capital planning procedures, we determined that: • AEC's procedures require lifecycle costs of assets to be assessed and recorded in the AMP for each major item of equipment, including key lifecycle issues, critical outages and operating and maintenance philosophy • The capital expenditure plan concurs with the assessed lifecycle costs of the facility's assets.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)
11.4 There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented	Through consideration of AEC's asset and business planning processes and inspection of AEC's Capital Expenditure Plan and AMP, we determined that AEC's capital expenditure requirements are reviewed and updated where relevant on an annual basis.	
	Process and Policy Rating: Adequately defined (A)	**Performance Rating:** Performing effectively (1)

4.12 Review of asset management system

Key process: The asset management system is regularly reviewed and updated

Expected outcome: Review of the AMS to ensure the effectiveness of the integration of its components and their currency.

Overall Process and Policy/Performance rating: Adequately defined (A) / Improvement required (2)

<table>
<tr><th>Effectiveness criteria</th><th colspan="2">Findings</th></tr>
<tr><td rowspan="2">12.1 A review process is in place to ensure the asset management plan and the asset management system described in it remain current</td><td colspan="2">Through consideration of Alinta Energy's Asset Management Policy and Framework and supporting AMS documentation, we observed that:
AEC's AMP, which is the main reference to its Asset Management System, was first prepared in 2021 at the time of commencement of operations and was subsequently reviewed and updated in June 2022 (draft version) in accordance with Alinta Energy's annual review cycle. With the support of designated engineering staff, the Alinta Energy Asset Engineer has the primary responsibility for that annual review, with the Operations Manager, Pilbara responsible for reviewing and the Alinta Energy Head of Optimisation responsible for approving the revised version
The current AMP dated June 2022, which remained in draft, still indicated asset commissioning and handover to operations was yet to occur, with further changes (e.g. updated risk profile) to be made to the AMP once handover occurred. We expect the June 2022 version of the AMP could have more accurately captured the changed circumstances, plus forecast timeframes and plans for addressing key elements such as updated risk assessments. This matter was discussed with AEC staff as an improvement opportunity.
Alinta Energy's Asset Management Framework provides for asset management activities to be subject to performance assessment and continuous improvement. Provision is made for independent audits and reviews to be conducted either internally or through third parties.</td></tr>
<tr><td>Process and Policy Rating: Adequately defined (A)</td><td>Performance Rating: Improvement required (2)</td></tr>
<tr><td rowspan="2">12.2 Independent reviews (e.g. internal audit) are performed of the asset management system</td><td colspan="2">As noted in section 12.1 above, components of AEC's asset management system are subject to regular review and update, including by independent consultants from time to time.
Improvement opportunity
To assist in demonstrating that its asset management framework and systems are subject to independent review in the appropriate timeframes and circumstances, it may be useful for Alinta Energy assign a schedule or clear criteria for subjecting its asset management framework and systems to independent review. This matter was discussed with AEC staff as a potential improvement opportunity.</td></tr>
<tr><td>Process and Policy Rating: Adequately defined (A)</td><td>Performance Rating: Improvement required (2)</td></tr>
</table>

5. Status of recommendations addressing asset system deficiencies from the previous review

Reference (no./year)	**Process and policy deficiency / Performance deficiency** (Rating / Reference number, Asset management process & effectiveness criterion / Details of deficiency)	Reviewer's recommendation or action planned	Date resolved	**Details of further action required** (including current recommendation **Further action required** (Yes/No/Not Applicable) reference, if applicable)
A. Resolved during current review period				
B. Unresolved at end of current review period				
Not applicable – there was no previous review.				

Appendix A – Review Plan

ASSURANCE ADVISORY GROUP

Alinta Energy (Chichester) Pty Ltd

Electricity Integrated Regional Licence (EIRL11)

2022 Asset Management System Review

Review Plan

October 2022

Table of Contents

Introduction

Overview

The Economic Regulation Authority (the **ERA**) has under the provisions of the Electricity Industry Act 2004 (the **Act**), issued to Alinta Energy (Chichester) Pty Ltd (**AEC or Alinta**) Electricity Integrated Regional Licence (EIRL 11) (the **Licence**).

Section 14 of the Act requires AEC to provide to the ERA an asset management system review (the **review**) report, conducted by an independent expert acceptable to the ERA not less than once in every 24-month period unless otherwise approved by the ERA. With the ERA's approval, Assurance Advisory Group (**AAG**) has been appointed to conduct the 2022 review for the period from the issue of the Licence on 30 August 2019 to 30 September 2022 (**review period**).

The Licence relates to AEC's generation and retail activities in relation to its Chichester 60MW solar PV facility, and associated infrastructure for the supply of electricity to Fortescue Metals Group Ltd's Chichester hub mining operations and the Roy Hill mine site, all located in the East Pilbara region of Western Australia. EAC operates as a subsidiary within the Alinta Group and is supported by the resource and system capabilities of Alinta Energy.

The review will be conducted in accordance with the ERA's March 2019 issue of the *Audit and Review Guidelines: Electricity and Gas Licences* (**Review Guidelines**). In accordance with the Review Guidelines this document represents the Review Plan (the **Plan**) that is to be agreed upon by AAG and AEC and presented to the ERA for approval.

Objective

The objective of the review is to independently examine the effectiveness and performance of the asset management systems established for the assets subject to AEC's Licence during the review period.

Scope

In accordance with the Review Guidelines, the review will consider the effectiveness of AEC's existing control procedures within the 12 key processes in the asset management life cycle as outlined below at Table 1. Each key process and effectiveness criteria is applicable to AEC's Licence and as such will be individually considered in this review.

Table 1 – Asset management system key processes and effectiveness criteria

Key processes	Effectiveness criteria
1. Asset Planning	1.1 Asset management plan covers the processes in this table 1.2 Planning processes and objectives reflect the needs of all stakeholders and is integrated with business planning 1.3 Service levels are defined in the asset management plan 1.4 Non-asset operations (e.g. demand management) are considered 1.5 Lifecycle costs of owning and operating assets are assessed 1.6 Funding options are evaluated 1.7 Costs are justified and cost drivers identified 1.8 Likelihood and consequences of asset failure are predicted 1.9 Asset management plan is regularly reviewed and updated.

Key processes	Effectiveness criteria
2. Asset creation and acquisition	2.1 Full project evaluations are undertaken for new assets, including comparative assessment of non-asset options 2.2 Evaluations include all life-cycle costs 2.3 Projects reflect sound engineering and business decisions 2.4 Commissioning tests are documented and completed 2.5 Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood
3. Asset disposal	3.1 Under-utilised and under-performing assets are identified as part of a regular systematic review process 3.2 The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken 3.3 Disposal alternatives are evaluated 3.4 There is a replacement strategy for assets
4. Environmental analysis	4.1 Opportunities and threats in the asset management system environment are assessed 4.2 Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved 4.3 Compliance with statutory and regulatory requirements 4.4 Service standard (customer service levels etc) are measured and achieved.
5. Asset operations	5.1 Operational policies and procedures are documented and linked to service levels required 5.2 Risk management is applied to prioritise operations tasks 5.3 Assets are documented in an asset register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition 5.4 Accounting data is documented for assets 5.5 Operational costs are measured and monitored 5.6 Staff resources are adequate and staff receive training commensurate with their responsibilities
6. Asset maintenance	6.1 Maintenance policies and procedures are documented and linked to service levels required 6.2 Regular inspections are undertaken of asset performance and condition 6.3 Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule 6.4 Failures are analysed and operational/maintenance plans adjusted where necessary 6.5 Risk management is applied to prioritise maintenance tasks 6.6 Maintenance costs are measured and monitored
7. Asset management information systems	7.1 Adequate system documentation for users and IT operators 7.2 Input controls include suitable verification and validation of data entered into the system 7.3 Security access controls appear adequate, such as passwords 7.4 Physical security access controls appear adequate 7.5 Data backup procedures appear adequate and backups are tested 7.6 Computations for licensee performance reporting are accurate 7.7 Management reports appear adequate for the licensee to monitor licence obligations 7.8 Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation

Key processes	Effectiveness criteria
8. Risk management	8.1 Risk management policies and procedures exist and are applied to minimise internal and external risks 8.2 Risks are documented in a risk register and treatment plans are implemented and monitored 8.3 Probability and consequences of asset failure are regularly assessed
9. Contingency planning	9.1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks
10. Financial planning	10.1 The financial plan states the financial objectives and identifies strategies and actions to achieve those 10.2 The financial plan identifies the source of funds for capital expenditure and recurrent costs 10.3 The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets) 10.4 The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period 10.5 The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services 10.6 Large variances in actual/budget income and expenses are identified and corrective action taken where necessary
11. Capital expenditure planning	11.1 There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates 11.2 The capital expenditure plan provides reasons for capital expenditure and timing of expenditure 11.3 The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan 11.4 There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented
12. Review of asset management system	12.1 A review process is in place to ensure the asset management plan and the asset management system described in it remain current 12.2 Independent reviews (e.g. internal audit) are performed of the asset management system

AEC's responsibility for maintaining an effective asset management system

AEC is responsible for putting in place policies, procedures and controls, which are designed to provide for an effective asset management system for assets subject to the Licence.

AAG's responsibility

Our responsibility is to express a reasonable assurance conclusion on whether, based on the procedures performed and the evidence obtained, we believe that AEC's AMS for assets subject to its Licence has been established and maintained, in all material respects, in accordance with the Licence as measured by the effectiveness criteria in the Guidelines for the period from 30 August 2019 to 30 September 2022. The review will be conducted in accordance with Australian Standard on Assurance Engagements ASAE 3500 Performance Engagements (**ASAE 3500**), issued by the Australian Auditing and Assurance Standards Board.

ASAE 3500 requires that we plan and perform the review to obtain assurance about whether the AMS for assets subject to the Licence is materially ineffective. A reasonable assurance engagement conducted in accordance with ASAE 3500 involves identifying areas where the AMS for assets subject to a Licence is likely to be materially ineffective, addressing the areas identified and considering the process used to prepare the AMS for assets subject to the Licence.

Limitations of use

Our report will be produced solely for the information and internal use of AEC and is not intended to be and should not be used by any other person or entity. No other person or entity is entitled to rely, in any manner or for any purpose, on our report.

We understand that a copy of our report will be provided to the ERA for the purpose of meeting AEC's reporting requirements of section 14 of the Act. We agree that a copy of our report may be provided to the ERA for its information in connection with this purpose, however we accept no responsibility to the ERA or to anyone who is provided with or obtains a copy of our report.

This plan is intended solely for the use of AEC for the purpose of its reporting requirements under section 14 of the Act.

Inherent limitations

Reasonable assurance means a high but not absolute level of assurance. Absolute assurance is very rarely attainable as a result of factors such as: the use of selective testing, the inherent limitations of internal control, the fact that much of the evidence available to us is persuasive rather than conclusive and the use of judgement in gathering and evaluating evidence and forming conclusions based on that evidence.

We cannot, in practice, examine every activity and procedure, nor can we be a substitute for management's responsibility to maintain adequate controls over all levels of operations and their responsibility to prevent and detect irregularities, including fraud.

Accordingly, readers of our report should not rely on the report to identify all potential instances of non-compliance or performance issues which may occur.

An assurance engagement relating to the period from 30 August 2019 to 30 September 2022 will not provide assurance on whether the AMS for assets subject to the Licence will remain effective in the future.

Independence

In conducting our engagement, we will comply with the independence requirements of the Australian professional accounting bodies.

Approach

The review will be conducted in three distinct phases, being a risk assessment, system analysis/policy and procedure review and examination of performance. From the review results, the report will be produced to outline findings, overall assessments and recommendations for improvement in line with the Review Guidelines. Each step of the review is discussed in detail below.

Risk assessment

The review will focus on identifying or assessing those activities and management control systems to be examined and the matters subject to review. Therefore, the purpose of conducting the risk assessment as a preliminary phase enables the reviewer to focus on pertinent/high risk areas of AEC's asset management systems established for the assets subject to the AEC Licence. The risk assessment considers changes to AEC's relevant systems and processes and any matters of significance raised by the ERA and/or AEC. The level of risk and materiality of the process determine the level of review required i.e. the greater the materiality and the higher the risk, the more effort will be applied.

The first step of the risk assessment is the rating of the potential consequences of AEC not effectively maintaining an asset management system for the assets subject to its Licence, in the absence of mitigating controls. The consequence classification descriptions listed at Table 1 of the Reporting Manual, provides the risk assessment with context to enable the appropriate consequence rating to be applied to each component of the asset management system subject to review.

Once the consequence has been determined, the likelihood of AEC not effectively maintaining an asset management system for the assets subject to its Licence (with reference to the defined effectiveness criteria) is assessed using the likelihood rating listed at Table 17 of the Review Guidelines (refer to Appendix 1). The assessment of likelihood is based on the expected frequency of non-performance against the defined criteria, over a period of time.

Table 2 below (sourced from the Review Guidelines) outlines the combination of consequence and likelihood ratings to determine the level of inherent risk associated with each individual effectiveness criteria

Table 2: Inherent risk rating

	Consequence		
Likelihood	Minor	Moderate	Major
Likely	Medium	High	High
Probable	Low	Medium	High
Unlikely	Low	Medium	High

Once the level of inherent risk has been determined, the adequacy of existing controls is assessed in order to determine the level of control risk. Controls are assessed and prioritised as weak, moderate or strong dependant on their suitability to mitigate the risks identified. The control adequacy ratings used by this risk assessment are aligned to the ratings specified in the Review Guidelines (refer to Appendix 1-3). Once inherent risks and control risks are established, the audit priority can then be determined using the matrix specified in the Review Guidelines (refer to Table 3 below). Essentially, the higher the level of risk the more substantive testing is required.

Table 3: Assessment of Review Priority

	Preliminary adequacy of existing controls		
Inherent Risk	Weak	Moderate	Strong
High	Review priority 1	Review Priority 2	
Medium	Review priority 3	Review Priority 4	
Low	Review Priority 5		

The following table outlines the review requirement for each level of review priority. Testing can range from extensive substantive testing around the controls and activities of particular processes (including physical inspection of asset infrastructure, which will be given greater attention for those processes with a review priority of 1, 2 or 3) to confirming the existence of controls through discussions with relevant staff.

Table 4: Review Priority Table

Priority rating	Review requirement
Review Priority 1	• Via interview and walkthrough, understand relevant processes and controls as they apply to each asset management system effectiveness criteria • Examine relevant documents, registers and reports as they apply to each asset management system effectiveness criteria • Obtain evidence of policies, procedures and controls being in place and working effectively • Controls testing and extensive substantive testing of activities and/or transactions as they apply to each asset management system effectiveness criteria, including physical inspection of applicable asset infrastructure • Follow-up and if necessary, re-test matters previously reported.
Review Priority 2	• Via interview and walkthrough, understand relevant processes and controls as they apply to each asset management system effectiveness criteria • Examine relevant documents, registers and reports as they apply to each asset management system effectiveness criteria • Obtain evidence of policies, procedures and controls being in place and working effectively • Controls testing and moderate substantive testing of activities and/or transactions as they apply to each asset management system effectiveness criteria, including physical inspection of applicable asset infrastructure • Follow-up and if necessary, re-test matters previously reported.
Review Priority 3	• Via interview and walkthrough, understand relevant processes and controls as they apply to each asset management system effectiveness criteria • Examine relevant documents, registers and reports as they apply to each asset management system effectiveness criteria • Limited controls testing (moderate sample size) of activities and/or transactions as they apply to each asset management system effectiveness criteria, including physical inspection of applicable asset infrastructure. Only substantively test transactions if further control weakness found • Follow-up of matters previously reported.
Review Priority 4	• Confirmation of existing controls via walk through of key processes and examination of key documents including policies and procedures, compliance/breach registers and reports • Follow-up of matters previously reported.
Review Priority 5	• Confirmation of existing controls via observation, discussions with key staff and/or reliance on key references including policies and procedures, compliance/breach registers and reports ("desktop review").

The risk assessment has been discussed with AEC representatives to gain their input as to the appropriateness and factual accuracy of risk and control ratings and associated explanations. The key sources considered in reaching our preliminary assessment of the risk and control ratings were based on:

- Our understanding of AEC's assets and internal processes.
- Any other factors that may influence the level or strength of controls.
- Consideration of relevant circumstances and activity that trigger specific performance issues.

At this stage, the risk assessment can only be a preliminary assessment based on reading of documentation and interviews by the auditors. It is possible that the ratings and risk assessment comments may be revised as we conduct our work and new evidence comes to light. The risk assessment is attached at Appendix 2.

System analysis / policy and procedure review

The level of policy and procedure review required will be determined utilising the priority scale. Once the priority level has been defined, the review will consist of:

- Interviewing AEC representatives and key operational and administrative staff responsible for the development and maintenance of policies and procedural type documentation
- Examination of documented policies and procedures for key functional requirements and consideration of their relevance to AEC's asset management system requirements and standards.

The policy and procedure element of the asset management system review will be performed to provide a rating as defined under Table 5 (refer below).

Key documents which may be subject to review are not specifically disclosed in this plan. A list of documents examined will be included in the review report.

Examination of performance

The actual performance of the relevant controls and processes in place will then be examined via:

- Consideration of reports and references evidencing activity
- Interviews with AEC representatives and key operational and administrative staff
- Physical visit to the Chichester Solar PV Facility
- Consideration of the facility's function, normal modes of operation and age.

A full work program will be completed to record the specific aspects of our review and examination of the performance of each asset management system key process. This work program will be based on:

- The review priority determined by the risk assessment to be applicable to each effectiveness criteria
- The results of the policy and procedure review, as described above
- The location of personnel and activity to be tested.

Review fieldwork will include a visit to AEC's Chichester Solar PV Facility, plus meetings with staff at Alinta Energy's Perth office and Newman office.

The performance effectiveness element of the asset management system review will be performed to provide a rating as defined under Table 6 (refer below).

Reporting

The review report will also be structured to address all of the minimum contents specified in section 5 of the Review Guidelines.

In accordance with the Review Guidelines, the reviewer must provide an assessment of both the process and policy rating (refer to Table 5 below and Table 8 of the Guidelines) and the performance rating (refer to Table 6 below and Table 9 of the Guidelines) for each of the key processes in AEC's asset management system.

AEC is responsible for providing a separate post review implementation plan, if required.

Table 5: Process and policy rating scale

Rating	Description	Criteria
A	Adequately defined	• Processes and policies are documented • Processes and policies adequately document the required performance of the assets • Processes and policies are subject to regular reviews, and updated where necessary • The asset management information system(s) are adequate in relation to the assets being managed
B	Requires some improvement	• Processes and policies require improvement • Processes and policies do not adequately document the required performance of the assets • Reviews of processes and policies are not conducted regularly enough • The asset management information system(s) requires minor improvements (taking into consideration the assets being managed)
C	Requires substantial improvement	• Processes and policies are incomplete or require substantial improvement • Processes and policies do not document the required performance of the assets • Processes and policies are considerably out of date • The asset management information system(s) requires substantial improvements (taking into consideration the assets being managed)
D	Inadequate	• Processes and policies are not documented • The asset management information system(s) is not fit for purpose (taking into consideration the assets being managed).

Table 6: Performance rating scale

Rating	Description	Criteria
1	Performing effectively	• The performance of the process meets or exceeds the required levels of performance • Process effectiveness is regularly assessed, and corrective action taken where necessary
2	Improvement required	• The performance of the process requires some improvement to meet the required level • Process effectiveness reviews are not performed regularly enough • Recommended process improvements are not implemented
3	Corrective action required	• The performance of the process requires substantial improvement to meet the required level • Process effectiveness reviews are performed irregularly, or not at all • Recommended process improvements are not implemented
4	Serious action required	• Process is not performed, or the performance is so poor the process is considered to be ineffective.

Resources and team

Key AEC contacts

The key contacts for this review are:

- Operations Manager, Pilbara
- Manager, Merchant Compliance
- Head of Operations
- Manager, WA Retail Regulation.

AAG Staff

AAG staff who will be involved with this assignment are:

- Margaret-Mary Gauci Senior Consultant
- Tanuja Sanders Senior Engineer
- Andrew Baldwin Executive Director
- Stephen Linden Director (QA review).

Resumes for key AAG staff are outlined in the proposal accepted by AEC and subsequently presented to the ERA.

Timing

The initial risk assessment phase was completed on 21 October 2022, after which the draft review plan and risk assessment were submitted to the ERA for review and approval.

The remainder of the fieldwork phase is scheduled to be performed over the period October to early December 2022, enabling a draft and final report to be submitted to the ERA by the due dates of 21 December 2022 and 21 January 2023 respectively.

AAG time and staff commitment to the completion of the review is outlined in the proposal accepted by AEC. In summary, the estimated time allocated to AMS Review activity is as follows:

- Planning (including risk assessment): 6 hours
- Fieldwork (including system analysis/walkthrough and testing/review): 34 hours
- Reporting: 19 hours.

Appendix 1 - Risk assessment key

1-1 Criteria for classification of consequence of ineffective performance

Source: Modified from Electricity Compliance Reporting Manual February 2022

Classification	Criteria for classification
Major	Classified on the bases that: • The consequences of ineffective performance would cause major damage, loss or disruption to customers; or • The consequences of ineffective performance would endanger or threaten to endanger the safety or health of a person.
Moderate	Classified on the basis that the consequences of ineffective performance affect the efficiency and effectiveness of the licensee's operations or service provision, but do not cause major damage, loss or disruption to customers.
Minor	Classified on the basis that: • The consequences of ineffective performance are relatively minor – i.e. ineffective performance will have minimal effect on the licensee's operations or service provision and do not cause damage, loss or disruption to customers; • Assessment of performance against the obligation is immeasurable; • The matter of ineffective performance is identified by a party other than the licensee; or • The licensee only needs to use its reasonable or best endeavours to demonstrate effective performance, or where the obligation does not otherwise impose a firm obligation on the licensee.

1-2 Likelihood ratings

Source: Review Guidelines: Electricity and Gas Licences March 2019

	Level	Criteria
A	Likely	Ineffective process or performance is expected to occur at least once or twice a year
B	Probable	Ineffective process or performance is expected to occur every three years
C	Unlikely	Ineffective process or performance is expected to occur at least once every 10 years or longer

1-3 Preliminary adequacy ratings for existing controls

Source: Review Guidelines: Electricity and Gas Licences March 2019

Level	Description
Strong	Controls mitigate the identified risks to a suitable level
Moderate	Controls only cover significant risks; improvement required
Weak	Controls are weak or non-existent and do little to mitigate the risks

Appendix 2 - Risk assessment

1. Asset Planning	
Key process	Asset planning strategies focus on meeting customer needs in the most effective and efficient manner (delivering the right service at the right price)
Outcome	Asset planning is integrated into operational or business plans, providing a framework for existing and new assets to be effectively utilised and their service optimised

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
1.1	Asset management plan covers the processes in this table	Moderate	Probable	Medium	Moderate	Priority 4
1.2	Planning process and objectives reflect the needs of all stakeholders and are integrated with business planning	Moderate	Unlikely	Medium	Moderate	Priority 4
1.3	Service levels are defined in the asset management plan	Moderate	Probable	Medium	Moderate	Priority 4
1.4	Non-asset options (e.g. demand management) are considered	Minor	Unlikely	Low	Moderate	Priority 5
1.5	Lifecycle costs of owning and operating assets are assessed	Minor	Probable	Low	Moderate	Priority 5
1.6	Funding options are evaluated	Minor	Unlikely	Low	Moderate	Priority 5
1.7	Costs are justified and cost drivers identified	Minor	Probable	Low	Moderate	Priority 5
1.8	Likelihood and consequences of asset failure are predicted	Major	Probable	High	Moderate	Priority 2
1.9	Asset management plan is regularly reviewed and updated	Minor	Probable	Low	Moderate	Priority 5

2. Asset creation and acquisition	
Key process	Asset creation/acquisition is the provision or improvement of assets
Outcome	The asset acquisition framework is economic, efficient and cost-effective; it reduces demand for new assets, lowers service costs and improves service delivery

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
2.1	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset options	Moderate	Probable	Medium	Moderate	Priority 4
2.2	Evaluations include all life-cycle costs	Moderate	Probable	Medium	Moderate	Priority 4
2.3	Projects reflect sound engineering and business decisions	Moderate	Probable	Medium	Moderate	Priority 4
2.4	Commissioning tests are documented and completed	Moderate	Probable	Medium	Moderate	Priority 4
2.5	Ongoing legal / environmental / safety obligations of the asset owner are assigned and understood	Major	Probable	High	Moderate	Priority 2

3. Asset disposal	
Key process	Asset disposal is the consideration of alternatives for the disposal of surplus, obsolete, under-performing or unserviceable assets
Outcome	The asset management framework minimises holdings of surplus and underperforming assets and lowers service costs. The cost-benefits of disposal options are evaluated

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process	Minor	Unlikely	Low	Moderate	Priority 5
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken	Minor	Unlikely	Low	Moderate	Priority 5
3.3	Disposal alternatives are evaluated	Minor	Unlikely	Low	Moderate	Priority 5
3.4	There is a replacement strategy for assets	Moderate	Probable	Medium	Moderate	Priority 4

4. Environmental analysis						
Key process	Environmental analysis examines the asset management system environment and assesses all external factors affecting the asset management system					
Outcome	The asset management system regularly assesses external opportunities and threats and identifies corrective action to maintain performance requirements					
Ref	**Effectiveness criteria**	**Consequence**	**Likelihood**	**Inherent risk rating**	**Controls assessment**	**Review priority**
4.1	Opportunities and threats in the asset management system environment are assessed	Moderate	Probable	Medium	Moderate	Priority 4
4.2	Performance standards (availability of service, capacity, continuity, emergency response, etc.) are measured and achieved	Moderate	Probable	Medium	Moderate	Priority 4
4.3	Compliance with statutory and regulatory requirements	Moderate	Probable	Medium	Moderate	Priority 4
4.4	Service standard (customer service levels etc) are measured and achieved.	Moderate	Probable	Medium	Moderate	Priority 4

5. Asset operations						
Key process	Asset operations is the day-today running of assets (where the asset is used for its intended purpose)					
Outcome	The asset operation plans adequately document the processes and knowledge of staff in the operation of assets so service levels can be consistently achieved					
Ref	**Effectiveness criteria**	**Consequence**	**Likelihood**	**Inherent risk rating**	**Controls assessment**	**Review priority**
5.1	Operational policies and procedures are documented and linked to service levels required	Moderate	Probable	Medium	Moderate	Priority 4
5.2	Risk management is applied to prioritise operations tasks	Moderate	Probable	Medium	Moderate	Priority 4
5.3	Assets are documented in an asset register including asset type, location, material, plans of components, and an assessment of assets' physical/structural condition	Moderate	Probable	Medium	Moderate	Priority 4
5.4	Accounting data is documented for assets	Moderate	Probable	Medium	Moderate	Priority 4
5.5	Operational costs are measured and monitored	Moderate	Probable	Medium	Moderate	Priority 4
5.6	Staff resources are adequate and staff receive training commensurate with their responsibilities	Moderate	Probable	Medium	Moderate	Priority 4

6. Asset maintenance						
Key process	Asset maintenance is the upkeep of assets					
Outcome	The asset maintenance plans cover the scheduling and resourcing of the maintenance tasks so work can be done on time and on cost					
Ref	**Effectiveness criteria**	**Consequence**	**Likelihood**	**Inherent risk rating**	**Controls assessment**	**Review priority**
6.1	Maintenance policies and procedures are documented and linked to service levels required	Moderate	Probable	Medium	Moderate	Priority 4
6.2	Regular inspections are undertaken of asset performance and condition	Major	Probable	High	Moderate	Priority 2
6.3	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule	Major	Probable	High	Moderate	Priority 2
6.4	Failures are analysed and operational/maintenance plans adjusted where necessary	Major	Probable	High	Moderate	Priority 2
6.5	Risk management is applied to prioritise maintenance tasks	Major	Probable	High	Moderate	Priority 2
6.6	Maintenance costs are measured and monitored	Moderate	Probable	Medium	Moderate	Priority 4

7. Asset management information systems						
Key process	An asset management information system is a combination of processes, data and software supporting the asset management functions					
Outcome	The asset management information system provides authorised, complete and accurate information for the day-to-day running of the asset management system. The focus of the review is the accuracy of performance information used by the licensee to monitor and report on service standards					
Ref	**Effectiveness criteria**	**Consequence**	**Likelihood**	**Inherent risk rating**	**Controls assessment**	**Review priority**
7.1	Adequate system documentation for users and IT operators	Minor	Probable	Low	Strong	Priority 5
7.2	Input controls include suitable verification and validation of data entered into the system	Moderate	Probable	Medium	Strong	Priority 4
7.3	Security access controls appear adequate, such as passwords	Minor	Probable	Low	Strong	Priority 5
7.4	Physical security access controls appear adequate	Minor	Probable	Low	Moderate	Priority 5
7.5	Data backup procedures appear adequate and backups are tested	Moderate	Probable	Medium	Strong	Priority 4
7.6	Computations for licensee performance reporting are accurate	Minor	Unlikely	Low	Moderate	Priority 5
7.7	Management reports appear adequate for the licensee to monitor licence obligations	Minor	Probable	Low	Strong	Priority 5
7.8	Adequate measures to protect asset management data from unauthorised access or theft by persons outside the organisation	Minor	Probable	Low	Moderate	Priority 5

8. Risk management						
Key process	Risk management involves the identification of risks and their management within an acceptable level of risk					
Outcome	The risk management framework effectively manages the risk that the licensee does not maintain effective service standards					
Ref	**Effectiveness criteria**	**Consequence**	**Likelihood**	**Inherent risk rating**	**Controls assessment**	**Review priority**
8.1	Risk management policies and procedures exist and are applied to minimise internal and external risks	Moderate	Probable	Medium	Moderate	Priority 4
8.2	Risks are documented in a risk register and treatment plans are implemented and monitored	Moderate	Probable	Medium	Moderate	Priority 4
8.3	Probability and consequences of asset failure are regularly assessed	Major	Probable	High	Moderate	Priority 2

9. Contingency planning						
Key process	Contingency plans document the steps to deal with the unexpected failure of an asset.					
Outcome	Contingency plans have been developed and tested to minimise any major disruptions to service standards.					
Ref	**Effectiveness criteria**	**Consequence**	**Likelihood**	**Inherent risk rating**	**Controls assessment**	**Review priority**
9.1	Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks	Major	Probable	High	Moderate	Priority 2

10. Financial planning						
Key process	Financial brings together the financial elements of the service delivery to ensure its financial viability over the long term					
Outcome	The financial plan is reliable and provides for the long-term financial viability of the services					
Ref	**Effectiveness criteria**	**Consequence**	**Likelihood**	**Inherent risk rating**	**Controls assessment**	**Review priority**
10.1	The financial plan states the financial objectives and identifies strategies and actions to achieve those	Moderate	Probable	Medium	Moderate	Priority 4
10.2	The financial plan identifies the source of funds for capital expenditure and recurrent costs	Minor	Probable	Low	Moderate	Priority 5
10.3	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets)	Minor	Probable	Low	Moderate	Priority 5
10.4	The financial plan provides firm predictions on income for the next five years and reasonable predictions beyond this period	Minor	Probable	Low	Moderate	Priority 5
10.5	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services	Minor	Probable	Low	Moderate	Priority 5
10.6	Large variances in actual/budget income and expenses are identified and corrective action taken where necessary	Minor	Probable	Low	Moderate	Priority 5

11. Capital expenditure planning	
Key process	The capital expenditure plan provides a schedule of new works, rehabilitation and replacement works, together with estimated annual expenditure for these works over the next five or more years. Since capital investments tend to be large and lumpy, projections would normally be expected to cover at least 10 years, preferably longer. Projections over the next five years would usually be based on firm estimates
Outcome	The capital expenditure plan provides reliable forward estimates of capital expenditure and asset disposal income. Reasons for the decisions and for the evaluation of alternatives and options are documented

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
11.1	There is a capital expenditure plan covering works to be undertaken, actions proposed, responsibilities and dates	Moderate	Unlikely	Medium	Moderate	Priority 4
11.2	The capital expenditure plan provides reasons for capital expenditure and timing of expenditure	Minor	Unlikely	Low	Moderate	Priority 5
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan	Minor	Unlikely	Low	Moderate	Priority 5
11.4	There is an adequate process to ensure the capital expenditure plan is regularly updated and implemented	Minor	Unlikely	Low	Moderate	Priority 5

12. Review of asset management system	
Key process	The asset management system is regularly reviewed and updated
Outcome	The asset management system is regularly reviewed and updated

Ref	Effectiveness criteria	Consequence	Likelihood	Inherent risk rating	Controls assessment	Review priority
12.1	A review process is in place to ensure the asset management plan and the asset management system described in it remain current	Minor	Probable	Low	Moderate	Priority 5
12.2	Independent reviews (e.g. internal audit) are performed of the asset management system	Minor	Probable	Low	Moderate	Priority 5

Appendix B – References

AEC representatives participating in the review

- Head of Operations, Alinta Energy
- Operations Manager, Pilbara
- Plant Supervisor, Chichester Solar Farm
- Manager WA Retail Regulation, Alinta Energy.

AAG staff participating in the review		**Hrs**
• Margaret-Mary Gauci	Senior Consultant	3
• Tanuja Sanders	Senior Engineer	25
• Andrew Baldwin	Executive Director	27
• Stephen Linden	Director (QA review)	1

Key documents and other information sources examined

- Alinta Energy Asset Management Policy
- Alinta Energy Asset Management Framework
- Alinta Energy Solar Farm (Chichester) Asset Management Plan
- Power Purchase Agreement – Alinta Energy Transmission (Roy Hill) Pty Ltd
- Power Purchase Agreement – Chichester Metals Pty Ltd
- Interconnection Agreement – Alinta Energy Transmission (Chichester) Pty Ltd
- Site Services Agreement – Fortescue Metals Group
- Alinta Energy Compliance records specific to AEC
- Notice of Practical Completion
- Emergency Response Plan, Newman Power Station
- Trainee Training Reports
- Chichester Solar Farm Equipment Hierarchy
- Extensive list of Operations & Maintenance Procedures & Strategies
- Planned Outage Schedules
- Sample Ellipse system records of maintenance activity
- Operator Rounds Check Sheets
- Example Plant Condition Dashboards
- Example monthly power station and transmission asset performance reports
- Sample Field Service Reports
- Vegetation Management Plan
- Sample Ellipse Work Order records and screenshots
- Alinta Energy Group IT policies and procedures
- Alinta Energy Risk Management Framework
- Alinta Energy Fleet Risk Summary

- Example Risk Management Tool
- Example InControl Event Reports
- P&L Budget vs Actuals FY22
- Capital Project Forecasts
- Representations from the Head of Operations, Alinta Energy and Operations Manager, Pilbara